UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/615,088	YEOH ET AL.
	Examiner	Art Unit	
	DAVID P. RASHID	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *05 March 2008*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3,5,6,9,10 and 19-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3,5,6,9,10 and 19-23* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *05 March 2008* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

[1]   All of the examiner's suggestions presented herein below have been assumed for

examination purposes, unless otherwise noted.

Amendments

[2]   This office action is responsive to the claim and specification amendment received on

March 5, 2008. Claims 1-3, 5-6, 9-10, and 19-23 remain pending; claims 4 and 7-8 cancelled;

claims 11-18 withdrawn; claims 19-23 new.

Drawings

[3]   The replacement drawings were received on March 5, 2008 and are acceptable.   In

response to applicant's drawing amendments and remarks, the previous drawing objections are

withdrawn.

Specification

[4]   In response to applicant's specification amendments and remarks received on March 5,

2008, the previous specification objections are withdrawn.

Claim Objections

[5]   In response to applicant's claim objections amendments and remarks received on March

5, 2008, the previous claim objections are withdrawn.

Claim Rejections - 35 USC § 101

[6]   In response to applicant's 35 USC § 101 amendments and remarks received on March 5,

2008, the previous 35 USC § 101 claim rejections are withdrawn.

Claim Rejections - 35 USC § 112

[7]   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

[8]   **Claims 21-23** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 21 cites "average backing surface chrominance value" and "color difference value".

Claim Rejections - 35 USC § 103

[9]   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

[10]   **Claims 1-3, 5-6, 9-10,** and **19-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2002/0126299 [*hereinafter* "Buchar et al."] in view of U.S. Patent No. 6,137,904 [*hereinafter* "Lubin et al."].

Regarding **Claim 1**, while *Buchar et al.* discloses a method of electronically registering documents supported by a selected backing surface (¶ 0012), comprising:

receiving image data ("image data" at ¶ 0020) comprising a representative sample of the backing surface ("backing surface" at ¶¶ 0013-0014), the backing surface image data including gray level values ("gray level values" at ¶ 0013) in multiple channels ("at least two color sensitive channels" at ¶ 0012) for selected pixel locations along a scanline (¶ 0013);

determining average gray level values for each of the multiple channels ("automatically

determining an average gray level..." at ¶ 0012);

selecting a registration channel (fig. 4, item 110) based on the average gray level values

(¶ 0034);

determining a registration parameter (fig. 4, item 114) based on the average gray level

value of the registration channel; and

identifying a relative positioning within a scan for a captured image data pixel ("...this

register is treated as being inside the document", "...this register is treated as being outside the

document" at ¶ 0024; *see* "i.e., identifying whether the pixel represents a portion of the captured

image that lies inside or outside the edges of the document", Applicant Resp. at 16, Mar. 5,

2008) based upon a comparison of an image data gray level value ("gray level values" at ¶ 0013)

and said registration parameter (fig. 4, item 114), *Buchar et al.* does not teach the gray level

values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values

("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made for the gray level values of *Buchar et al.* to include chrominance values as taught by

Lubin et al. for "the advantage of reducing processing time nd memory requirements by 50%.

Luminance and chrominance processing are identical for options 1 and 2 since both options

operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 2**, while *Buchar et al.* discloses wherein the step of selecting a

registration channel includes selecting a gray level channel having a low average gray level value

("lowest average gray level is identified" at ¶ 0034), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

hue image data, which require no high speed data processing.", *Kojima et al.*, 21:17-23.

Regarding **Claim 3**, *Buchar et al.* discloses wherein the step of selecting a registration channel includes selecting a gray level channel having an average gray level value below a threshold gray level (¶¶ 0020, 0043; claim 3), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 5**, while *Buchar et al.* discloses further comprising:

determining a black average register (BAR) registration parameter as a function of the

average gray level value of the registration channel ("BAR" at ¶¶ 0024, 0037, 0039; Claim 5);

and

identifying image data positioned outside an input document edge based upon a

comparison of an image data chrominance and said black average register registration parameter

("[t]he BAR identifies a black level threshold wherein input video having a gray level less than

(i.e., darker or blacker) the value in this register as treated as being outside the document..." at ¶

0024), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values

("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made for the gray level values of *Buchar et al.* to include chrominance values as taught by

Lubin et al. for "the advantage of reducing processing time nd memory requirements by 50%.

Luminance and chrominance processing are identical for options 1 and 2 since both options

operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **claim 6**, while *Buchar et al.* discloses wherein the black average register

(BAR) is set to equal the average gray level value of the registration channel (equation (3) at ¶

0037), the step change register (SCR) is set to equal the gray level deviation for the registration

channel (equation (4) at ¶ 0037), and the white change register (WAR) is set to equal to sum of

average gray level value and gray level deviation of the registration channel (equation (5) at ¶

0037), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 7**, while *Buchar et al.* discloses wherein the step change register (SCR) is set to equal the gray level deviation for the registration channel (equation (4) at ¶ 0037), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 8**, while *Buchar et al.* discloses wherein the white change register (WAR) is set to equal to sum of average gray level value and gray level deviation of the registration channel (equation (5) at ¶ 0037), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 9**, while *Buchar et al.* discloses further comprising:

determining a gray level deviation for the registration channel (fig. 4, item 112); and

generating a gray level deviation threshold ($\delta_1, \delta_2, \delta_3$ in equations (3), (4), (5) at ¶ 0037; ¶ 0038) based on the gray level deviation for the registration channel, *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 10**, while *Buchar et al.* discloses wherein the backing surface comprises a ski (fig. 2), the ski being adapted to be removably attached to a document handler (Claim 7).

Regarding **Claim 19**, while *Buchar et al.* discloses further comprising:

determining a gray level deviation (fig. 4, item 112) for said registration channel;

determining a white average register (WAR) registration parameter as a function of said average gray level value and said gray level deviation ("WAR" at ¶¶ 0024, 0037, 0039; Claim 4); and

identifying image data positioned inside an input document edge based upon a comparison of an image data gray level value and said white average register registration parameter ("[t]he WAR identifies a white level threshold wherein input video having a gray level greater (i.e., lighter or whiter) than the value in this register as treated as being inside the document" at ¶¶ 0024), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 20**, while *Buchar et al.* discloses further comprising:

determining a step change register (SCR) registration parameter as a function of said gray level deviation ("SCR" at ¶¶ 0024, 0037, 0039; Claim 4); and

identifying image data positioned inside an input document edge based upon a

comparison of said step change register registration parameter to a difference between said input

document corresponding image data gray level value and said backing surface corresponding

image data gray level value ("[t]he SCR identifies a value wherein input video having a change

over N pixels (measured as the absolute difference between average of N/2 darkest pixels and the

N/2 lightest pixels) greater than the SCR value is treated as an edge" at ¶¶ 0024), *Buchar et al.*

does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values

("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made for the gray level values of *Buchar et al.* to include chrominance values as taught by

Lubin et al. for "the advantage of reducing processing time nd memory requirements by 50%.

Luminance and chrominance processing are identical for options 1 and 2 since both options

operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 21**, while *Buchar et al.* discloses a method of automatically detecting

an edge of an input document ("…at least one edge of a document sheet…" at ¶ 0012) supported

by a selected backing surface (¶ 0012), comprising:

detecting a scanner backing surface ("backing surface" at ¶¶ 0013-0014) gray level value

(fig. 4, item 102);

determining an average backing surface gray level value (fig. 4, item 102) and a color

difference value (equations (3)-(5) are color averages values involving differences);

selecting a low gray level contribution channel as a registration channel (fig. 4, item 110);

capturing image data ("image data" at ¶ 0020) including pixels representing the input

document and pixels representing the backing surface ("document", "backing surface", "pixels"

at ¶¶ 0013-0014); and

identifying a backing surface corresponding image data pixel ("when a document is

scanned, the appropriate channel would be used..." at ¶¶ 0039) based upon a comparison of said

backing surface gray level value (fig. 4, item 102) and a gray level value (fig. 4, items 110, 112,

114) for said image data pixel, *Buchar et al.* does not teach the gray level values including

chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values

("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made for the gray level values of *Buchar et al.* to include chrominance values as taught by

Lubin et al. for "the advantage of reducing processing time nd memory requirements by 50%.

Luminance and chrominance processing are identical for options 1 and 2 since both options

operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 22**, while *Buchar et al.* discloses further comprising:

determining an input document threshold value ("threshold" at ¶¶ 0024, 0033, 0038); and

identifying an input document corresponding location ("to enable automatic location and

orientation of the original being scanned" at ¶ 0022) based upon a comparison of said input

document threshold and to said image data pixel gray level (refer to references/arguments cited

in Claim 21), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

Regarding **Claim 23**, while *Buchar et al.* discloses further comprising:

determining a gray level deviation threshold ("threshold" at ¶¶ 0024, 0033, 0038) for identifying document edge corresponding image data ("edge detection" at ¶ 0023; intended usage); and

identifying document edge corresponding image data pixels based upon a comparison of said gray level deviation threshold ("threshold" at ¶¶ 0024, 0033, 0038) to a difference in gray level value for an input document corresponding pixel and a backing surface corresponding pixel (equations (3)), *Buchar et al.* does not teach the gray level values including chrominance values.

Lubin et al. teaches wherein image data (fig. 2, item 205) comprises chrominance values ("C'b" and "C'r" at fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the gray level values of *Buchar et al.* to include chrominance values as taught by *Lubin et al.* for "the advantage of reducing processing time nd memory requirements by 50%. Luminance and chrominance processing are identical for options 1 and 2 since both options operate on full-height images." *Lubin et al.*, 9:3-9.

and hue image data, which require no high speed data processing.", *Kojima et al.*, 21:17-23.

Response to Arguments

[11]   Applicant's arguments filed on March 5, 2008 with respect to the election/restriction and claim 1 have been respectfully and fully considered, they are not found persuasive.

[12]   Summary of Remarks regarding Election/Restriction:

Applicant argues that the originally filed claim 11 and its dependent claims are directed to electronic registration using multiple channels, one possible use for a method of automatically detecting registration parameters for a selected backing surface. As Applicants' also noted, while claim 1 recites receiving "image data," the methods recited in claim 11 and its dependents recite receiving "scanned" image data- a specific type of image data that may be received by a method such as that recited in claim 1 and further, while methods such as those recited in claim 1 may generally be used to identify characteristics that are identifiable by gray level differences, claim 11 is more narrowly directed to detecting a document edge. (Applicant Resp. at 14, March 5, 2008.).

[13]   Examiner's Response regarding Election/Restriction:

However, claims 1 and 11 are non-obvious variants as both claims are directed to separate sub-classes (claim 1 being directed to 382/162 [color image processing] and claim 11 being directed to 382/199 [pattern boundary and edge measurements]. In furtherance, Applicant's specification further supports separate non-obvious variants when citing that claim 11, "a method of edge detection suing multiple channels" is in fact "another aspect of the teachings herein" (U.S. Pub. No. 2004/0114147 at ¶ [0011]). Applicant's argument that both

claim 1 and 11 are directed to some form of "image data" is not persuasive in that the entire class

382 is directed to "image data", with various established sub-classes (each directed to various

image analysis functions that distinguish claim 1 from claim 11 as non-obvious variants).

[14]   Summary of Remarks regarding claim 1:

Applicant argues that Kojima does not teach or suggest using chrominance data to detect

registration parameters or for any other purpose relating to document registration. Applicants

note further that Buchar does not teach or suggest that the use of chrominance data could be a

viable substitute for the use of luminance data in the method disclosed and in fact, Kojima's

teaches away from such a suggestion by disclosing that chrominance data should be discarded in

order to reduce memory.

[15]   Examiner's Response regarding claim 1:

Applicant's arguments with respect to claim 1 have been considered but are moot in view

of the new ground of rejection.

Conclusion

[16]   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

[17]   Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached Monday - Friday 8:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Rashid/
Examiner, Art Unit 2624

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Supervisory Patent Examiner, Art Unit 2624